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Quality of Care and Outcomes Assessment

ADDITION OF ALBUMIN, BILIRUBIN, WBC DIFFERENTIAL COUNT, AND OTHER ROUTINELY COLLECTED LABORATORY TESTS TO THE INTERMOUNTAIN RISK SCORE IMPROVES THE PREDICTIVE ABILITY OF DEATH AMONG A GENERAL HEALTHCARE POPULATION

ACC Moderated Poster Contributions
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Background: The Intermountain Risk Score (IMRS), a sex-specific mortality-prediction metric created in a general medical population and validated in a variety of other populations has been shown to predict mortality. The IMRS is comprised of the components of the CBC, BMP, and age. Whether the addition of data from the complete metabolic panel (CMP) and CBC with differential [CBCD] improves risk stratification is unknown.

Methods: Pts with baseline CMP and CBCD measurements were randomly assigned (60%/40%) to independent training (n=60,411) and test (n=40,291) populations. A sex-specific risk score based on the IMRS methods was computed in the training population using adjusted multivariable regression weights from all significant and non-collinear CMP and CBCD components.

Results: Age averaged 67±16 yrs for females and 67±15 yrs for males. Final components from the CMP and CBCD that were included in the expanded IMRS included the original IMRS features and albumin, alkaline phosphatase, AST, bilirubin, protein, basophil, eosinophil, monocyte, and the neutrophil/lymphocyte ratio. ROC c-statistics for 30 day, 1 year, and 5 year death (Table) showed improvement in both females and males.

Conclusions: The addition of the unique CMP and CBCD components to the IMRS improved risk prediction for short, intermediate, and long-term mortality. These results show that the expanded IMRS should be further studied as a tool in patient care, risk-adjustment, and clinical research settings for predicting outcomes.

Table. AUC c-statistics

Females			
	30 Day Death	1 Year Death	5 Year Death
Training			
N	36,778	32,572	12,935
IMRS	0.865	0.828	0.809
CBC+CMP	0.895	0.854	0.835
CBC w/diff + CMP	0.904	0.857	0.838
Test			
N	24,440	21,651	8,617
IMRS	0.873	0.822	0.806
CBC+CMP	0.877	0.841	0.822
CBC w/diff + CMP	0.884	0.841	0.822
All			
N	61,218	54,223	21,552
IMRS	0.868	0.825	0.808
CBC+CMP	0.888	0.849	0.830
CBC w/diff + CMP	0.896	0.850	0.832
Males			
	30 Day Death	1 Year Death	5 Year Death
Training			
N	23,633	20,676	8,224
IMRS	0.824	0.798	0.795
CBC+CMP	0.861	0.835	0.814
CBC w/diff + CMP	0.878	0.837	0.828
Test			
N	15,851	13,870	5,457
IMRS	0.824	0.789	0.788
CBC+CMP	0.854	0.829	0.809
CBC w/diff + CMP	0.861	0.832	0.819
All			
N	39,484	34,546	13,681
IMRS	0.824	0.795	0.792
CBC+CMP	0.859	0.832	0.812
CBC w/diff + CMP	0.871	0.835	0.825